PATENTTI- JA REKISTERIHALLITUS
Tule ja onnistu.

PATENTING

T-109.5410

Technology Management in the Telecommunications Industry

Aalto University 29.10.2014

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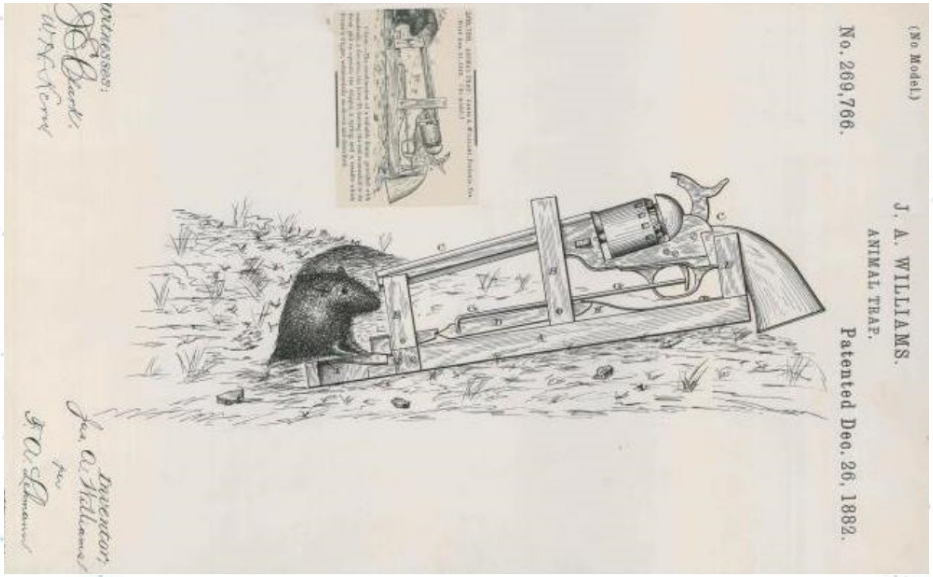
Disclaimer

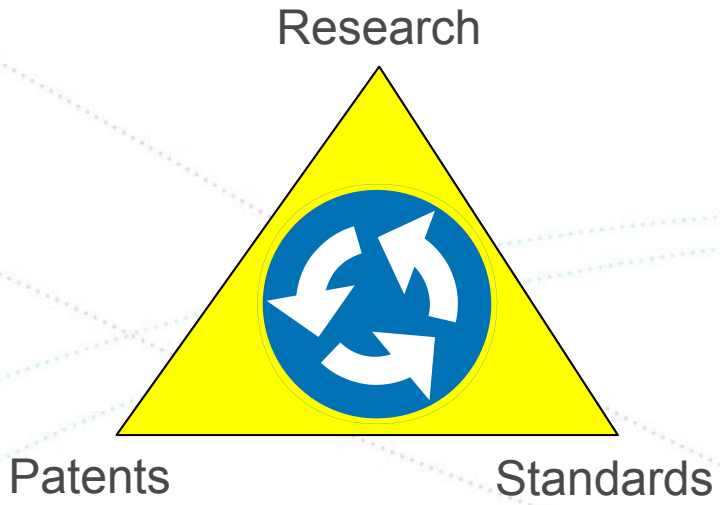
- Most comments based on the Finnish Patent Law that is aligned with European (EPO) views
- A lot of content in this lecture is from official sources, BUT
  - Not all presented material is official
  - Law and conduct varies between patent systems
- This lecture contains also informal material
  - To shed light on one examiner's views

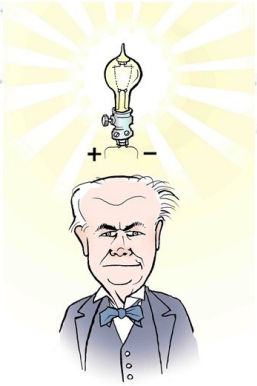


Animal Trap by J. A. Williams (1882)

Background of speaker

- Nokia Data 1984-1994
  - Embedded software
  - Product engineer
- Nokia Networks 1994-2009
  - Protocol software
  - Research, patents, standards
  - Business development
- Aalto University 2010-2013
  - Open APIs
  - Network virtualization
- PRH since April 2013
  - Patent examiner, ICT





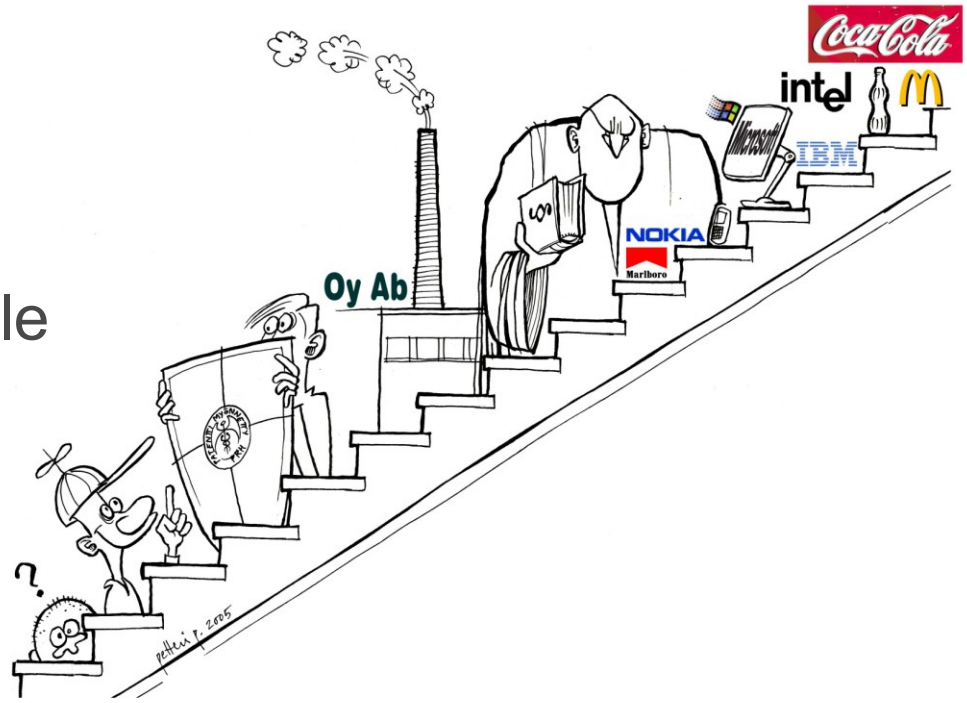
Finnish Patent and Registration Office (PRH)

- First patent given in Finland in 1842
- PRH founded in 1942
- Around 420 employees, over 100 patent examiners
- Budget for 2014 49.4 M€
- Revenue: 47.5 M€, state: 1.9 M€
- Strategic goals: electronic services, quality & speed

PRH PATENTTI- JA REKISTERIHALLITUS

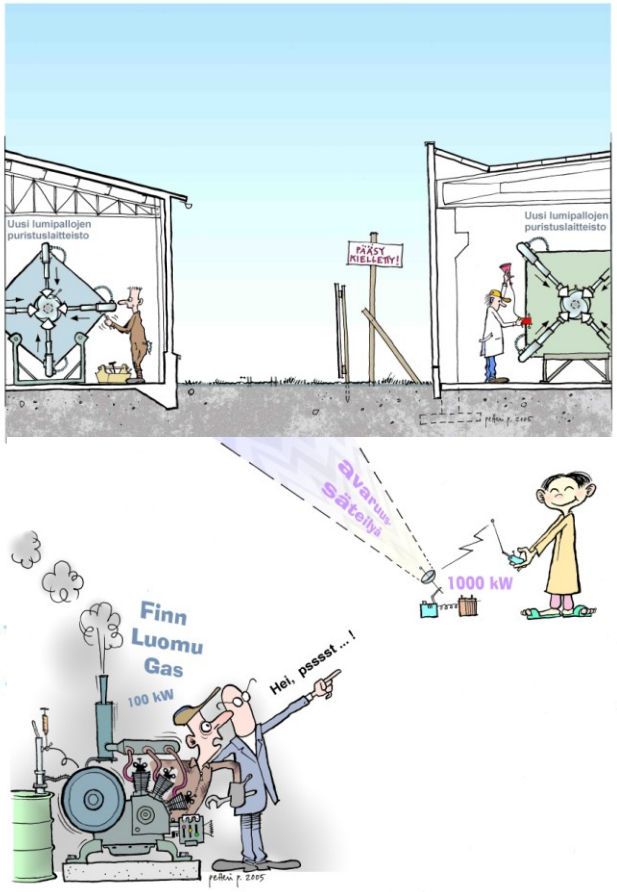
Outline

- Motivation
- Intellectual Property (IP)
- Why to patent
- Patentable/Not patentable
- Software patents
- Patent systems
- How to patent
- Patent application
- Examples
- More information



Motivation

- IP intensive industry value in US (2010): 35% of GDP or $5 trillion ($5*10^{12})
- In Finland only 6% disruptive innovations (ref. 17% int. average)
- Over 60% of companies do not utilize IP data
- Do not invent the wheel again
  - Overlapping R&D work level 30..50%
  - IP information often (70..90%) available only through IP (over 30 million), not over conference papers
  - Always check your idea first before investing
- Integrate into R&D from the beginning



Intellectual Property (IP)

- Patent
  - Protects inventions having a technical aspect
  - 20 years
- Utility model (exists only in selected countries)
  - Required level of *inventiveness* is not as high as for patents
  - Up to 10 years (4+4+2)
- Trademark
  - Protects specific name/label of a product or service
  - In steps of 10 years up to forever
- Design model
  - Protects external appearance or form of a product
  - In steps of 5 years up to 25 years

Why to Patent

- “One who has made an **invention** related to any field of **technology** that can be applied industrially … can be **granted** a patent and, therefore, a **privilege to profit** on it professionally”
- Right to forbid others from using the invention commercially on certain country/countries
- After 18 months patent becomes public (unless withdrawn)
  - Precise technical description advances the state of the art
  - *In return*, privilege is granted to the inventor for 20 years
- Protects the inventor and company
  - Investment on R&D
  - Freedom to operate
- Licensing
- Important element for startup value creation

Alternatives to Patents

- Keep the invention secret
  - Only if the invention is difficult or impossible to reveal from the final product
  - Contains risks:
    1) someone else makes the same invention and obtains a patent
    2) someone else uses reverse engineering and finds out your inventive idea and starts manufacturing the same product
- Publish the invention
  - No one can patent the invention anymore
  - The invention is free to be used by anyone even industrially
- Combination (secret, patent, publish)

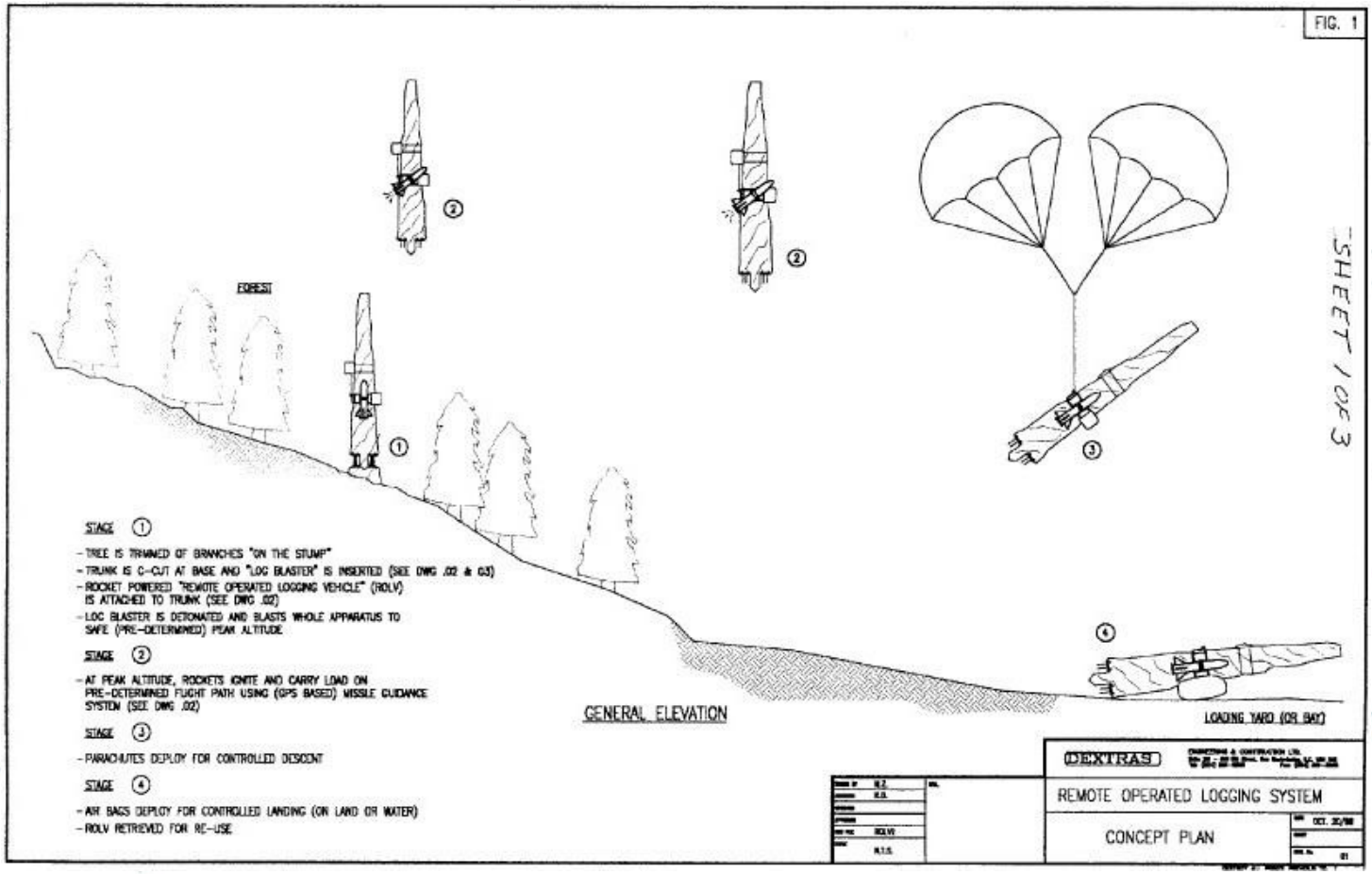
Patentable Subjects Under Finnish Law

- Three main criteria: Novelty, Inventive step, Industrial applicability
- Surprising, non-obvious (and simple) idea with unexpected results for an old or new technical problem
- Might look obvious afterwards
- Can be, for example:
  - A product
  - A use of a product
  - A process (method)
  - An apparatus
- The invention must be possible to implement by a person skilled in the art => repeatable
- Must be possible according to laws of physics, perpetual motion machine type inventions not allowed

Examination Process

- Novelty
  - Search state of the art before the application filing date/priority date
  - Any public material (patents, conference publications, internet articles, Wikipedia, YouTube etc. with exact publication date
  - Not novel if all features are disclosed in a single publication
- Inventive Step
  - Select closest prior art => delta => Problem Solution Approach
  - Could/would a person skilled in the art find a solution by combining another publication or is it just general knowledge
- Industrial Applicability
  - Any physical activity comprising technical features
  - Can be made or used in industry

Patent does not need to be rational



Kenneth Dextras (2000): Remote Operated Logging System

Non-Patentable Subjects Under Finnish Law

- Lack of technical effect
- Surgical, therapeutic or diagnostic methods
- Plants, animals, biological breeding methods
- Artistic creations
- Subject matter conflicting good ethics or public order
- Software related (“as such” not enough):
  - Discoveries, scientific theories, mathematical methods
  - Plans, rules, methods for intelligent operation, business models, computer programs
  - Display of information

Software Patents

- Software alone (“as such”) usually not patentable, but have to be “a computer-implemented invention”
- “Claim 4: A computer program comprising code for causing performing of the method of any of claims 1-3”
- However, methods above must be innovative
- Program listings can be protected by copyright
- Landmark, precedent cases lead the interpretation of the law
- Case law of the EPO boards of appeal (ref. Comvik case)
- US Supreme Court: an abstract idea implemented with a computer is not enough (Alice vs. CLS Bank)
- US and EPO views are getting closer
- Patent trolls: 2900 software companies were sued (2012)

Patent Systems

- World Intellectual Property Organization (WIPO)
  - Umbrella for Intellectual Property Organizations
  - Patent Cooperation Treaty (PCT)
  - WO-prefix
- EPO (European Patent Office)
  - European Unitary Patent System (in 2016?)
  - EP-prefix
- National patent offices
  - National scope of IPR protection
  - USPTO (United States/US), JPO (Japan/JP), PRH (Finland/FI), etc.
  - Patent Prosecution Highway (PPH): provides accelerated patent prosecution procedures by sharing information between some patent offices (for example, PRH & USPTO have PPH agreement)

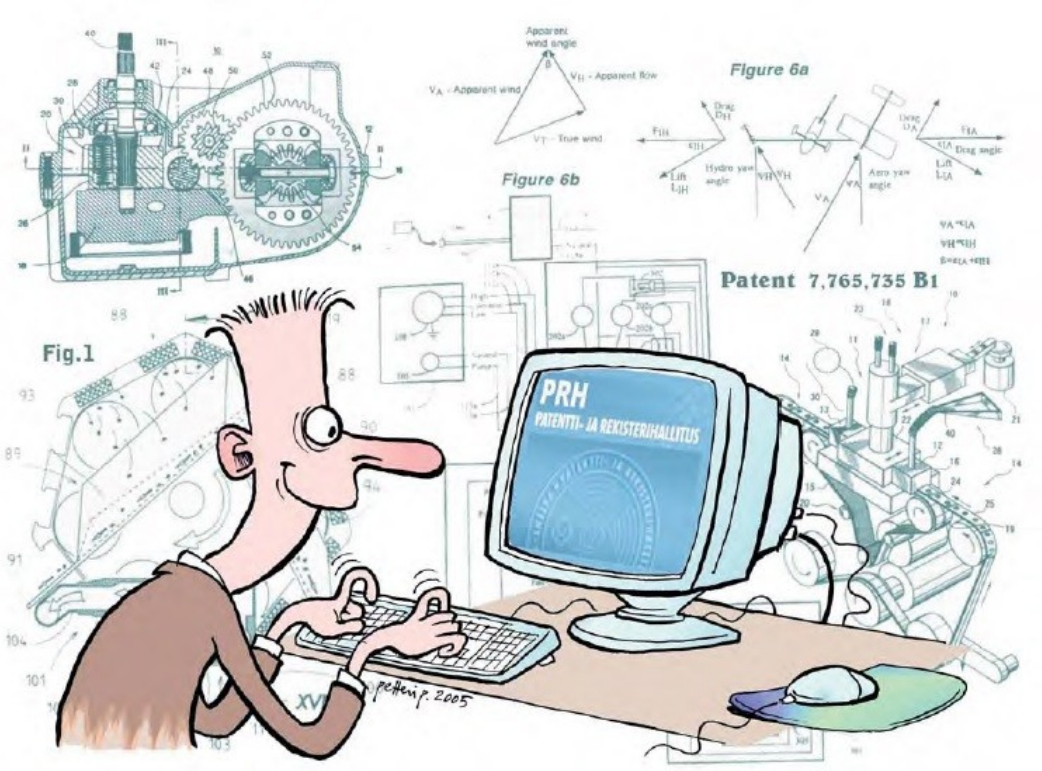
Patenting in Practice (one example)

- File an application in one country (you obtain the priority for the invention)
- Within 12 months, file an application for the same invention in all relevant countries

  OR
- Within 12 months, file a PCT application
  - A PCT application does not itself result in the grant of a patent, since there is no such thing as an "international patent", and the grant of patent is a prerogative of each national or regional authority
  - In other words, a PCT application, which establishes a filing date in all contracting states, must be followed up with the step of entering into national or regional phases in order to proceed towards grant of one or more patents

Patent Application Components

- Title
- Applicant, Inventor(s), Agent
- Abstract
- Filing date
- Priority date
- Publishing date
- Classification
- Kind Code
- Description
- Claims
- Drawings (optional)



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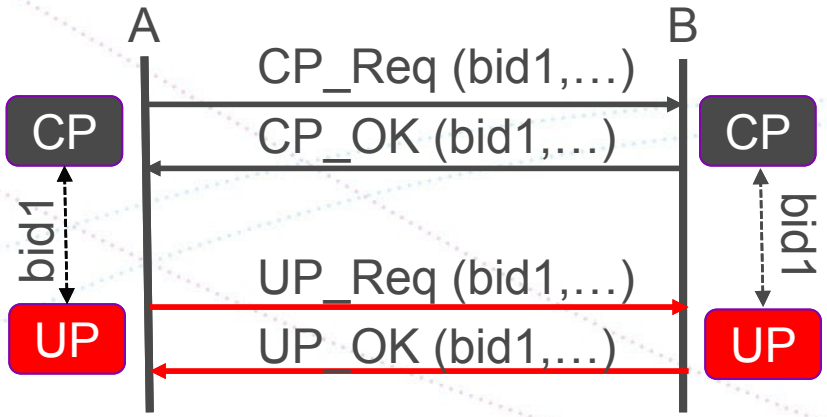
Example #1 – Connection Establishment in a Wireless Telecommunications Network

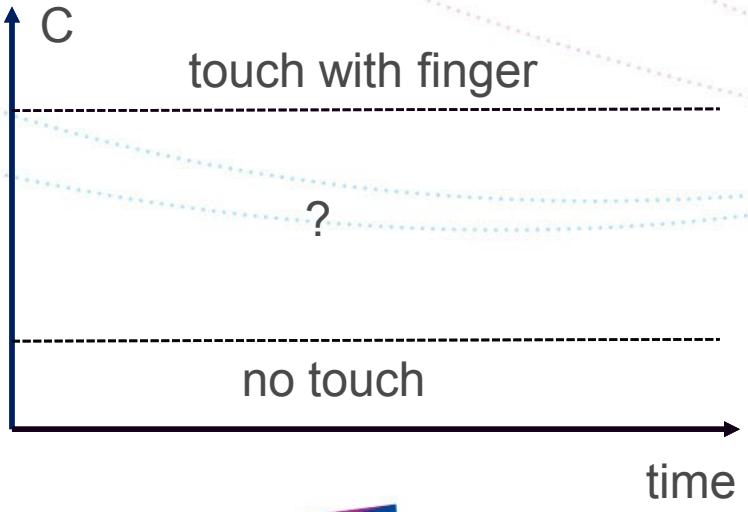
- Original application: FI982029
- Priority date: 21.09.1998, int. filing date: 20.09.1999, published: 30.03.2000
- Part of 3G standards, cannot be circumvented=>essential patent, more valuable to company (and inventor)
- Law on employee inventions:
  - Invention belongs to a natural person but your employer can get all rights to it
  - You are entitled to a reasonable reward (fixed or percentage)



CP=control plane
UP=user plane

Example #2: Apparatus, Method and Computer Program for Enabling User Input

- WO2014013128
- Invention: you may use touch screen with gloves
- Touch screen old stuff
- Capacitance (C) varies depending on the gap and stability of finger
- Example of an invention based on a finding
- Finding as such not patentable but with an apparatus could be
- Possible prior art US2006279548 found by USPTO
- No final decision yet



Example #3: Wireless Network Authentication Apparatus and Methods

- WO2011139795
- Invention: you may have software based SIM card enabling multiple service providers
- Comvik case T 0641/00 (2002): application about having two separate SIM cards on the phone was rejected due to standard GSM feature where SIM card supports multiple applications
- Apple received patent for software SIM in US after modifications (US8666368)
- EPO decision open
- Editor's note: Apple SIM supporting software SIM feature introduced for iPad Air 2 and Mini 3 tablets in Oct 2014

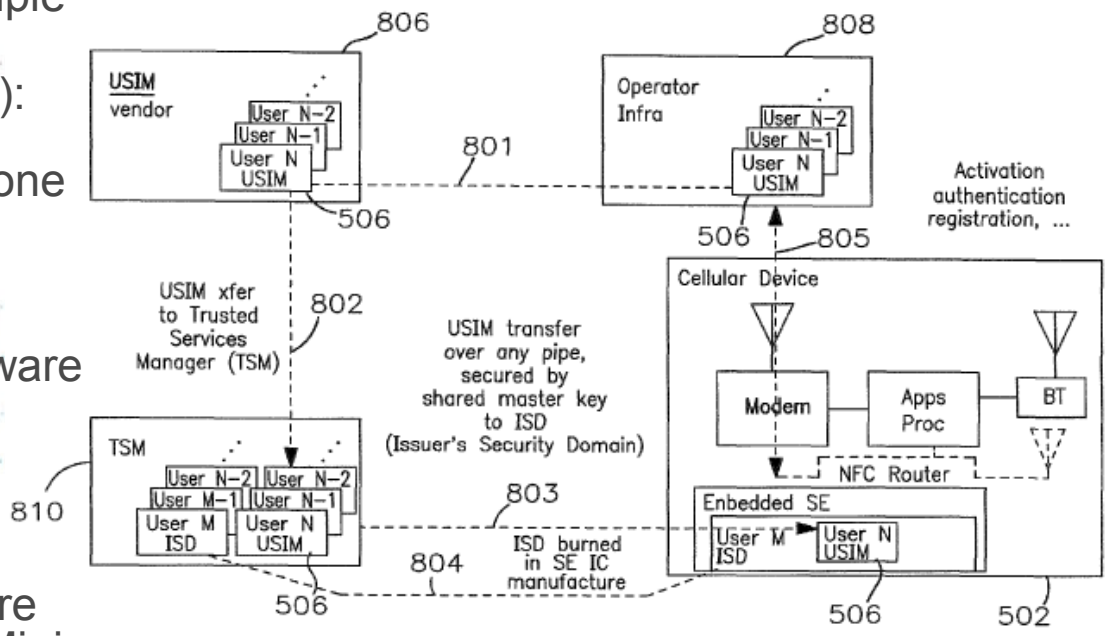
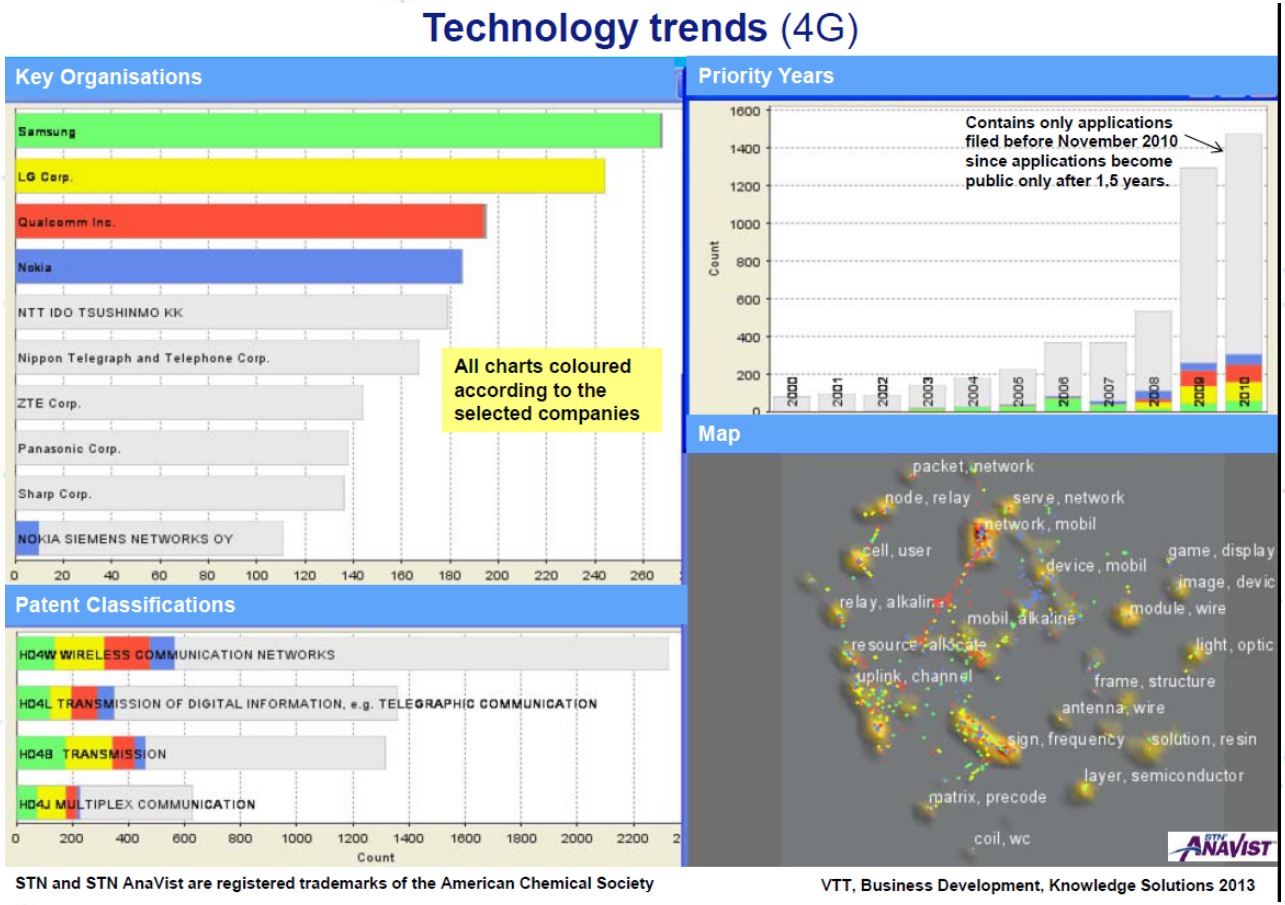


FIG. 8

Patent Research in Finland (VTT, Universities)



Source: Laura Ruotsalainen, VTT: Data Mining Tools for Technology And Competitive Intelligence (2008)

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More Information

- PRH offers counseling (mainly in Finnish)
  - FAQ
  - Improve your R&D
  - Research services
- Check IPR services in your university/company – Aalto ACE
- Search
  - PatInfo by PRH (in Finnish)
  - Espacenet by EPO
  - Patentscope by WIPO
  - USPTO search by USPTO
  - Google

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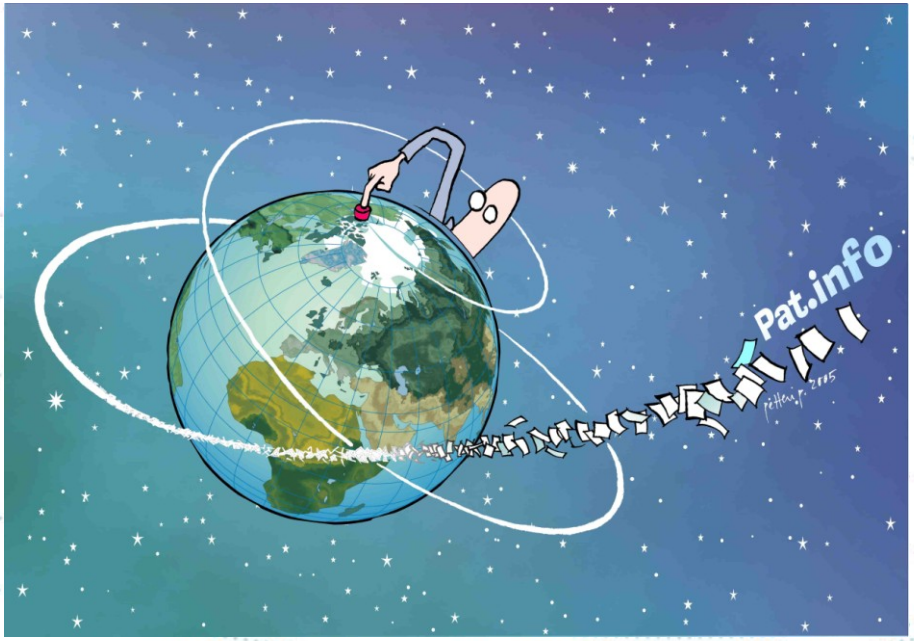
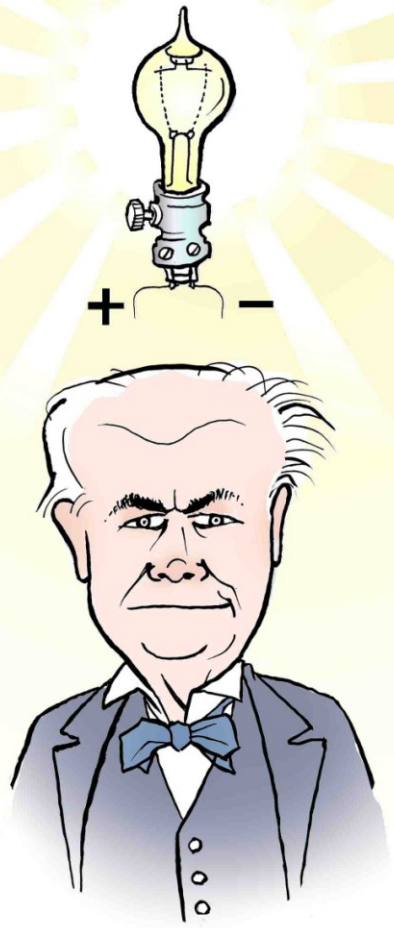
Other Links

- Wikipedia/Software patent
- FOSS Patents: blog on mobile software patents
- Free Patents Online: blogs, community, search, consulting
- Case text, RPX and Spacer: Patent risks and trials





Thank You!

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